BASIS FOR THE AMENDMENT

Claims 11-12, 14-18 and 20-47 are active in the present application. Claims 1-10, 13 and 19 are canceled claims. Claims 42-47 are new claims. Support for new claims is found in the previously presented claims.

No new matter is added.

REMARKS

In the Office Action of April 6, 2006, the Office asserts that the subject matter of Claims 13 and 19 is obvious in view of a combination of Kirshberg (U.S. 2003/0066625) and Schutt (U.S. 2002/0102417). Applicants traverse the rejection on the grounds that none of the prior art relied upon by the Office describes a heat-transport device that includes a glass and/or a substrate that is covered with any one of SiO_2, SiN, and/or SiC.

The Office is of the belief that Schutt suggests the subject matter of Claims 13 and 19. The Office states:

> However, Schutt teaches the use of a silane-based protective coating used to block the migration of an alkylene component from HVAC (refrigeration systems) ([0003], [0005], [0010] and [0021]), also a variety of method of applying the coating and different silicon-based coating material combinations. (See the second full paragraph on page 4 of the April 6, 2006 Office Action).

Applicants submit that the silane-based protective coating of Schutt is different from the stable material such as SiO_2, SiC, and SiN recited in present independent Claims 11 and 17. Schutt describes the prior art coating as follows:

> Oligomeric silane coating compositions containing, for example, methyltrimethoxysilane, are used to coat new or used heat exchange apparatus, such as HVAC, to greatly improve the heat transfer efficient and prevent or inhibit corrosion. (See the first full sentence in the Abstract.)

In other parts of the specification of Schutt the coating is described as one that contains oligomeric components ([0019]) is silane-based, and has a silane material of a particular formula, see paragraphs [0019], [0021], [0024], [0039], [0056] and throughout the Schutt specification. A silane-based coating is different from a SiO_2, SiC, or SiN, stable material. An organosilane is a compound wherein an hydrocarbon substituent or hydrogen is bonded to a silicon atom. Applicants draw the Office's attention to the definition for "Silane Coupling Agents" obtained from *Whittington's Dictionary of Plastics*, second edition,

Technomic Publishing Co., 1978, pp. 287-288, a copy of which is attached herewith. Applicants submit that it is readily evident to those of ordinary skill in the art that a silane material such as the silane materials for which chemical formulas are provided in paragraphs [0024] and [0039] of Schutt are not the silicon-containing materials such as SiO_2, SiC, and SiN, presently recited in independent Claims 11 and 17.

The stable materials of present independent Claims 11 and 17 do not contain hydrogen or hydrocarbon substituents. Thus the stable material of the present claims is different from the silane coating composition of Schutt.

Because the prior art relied upon by the Office does not disclose or suggest the stable materials of present Claims 11 and 17, the prior art relied upon by the Office cannot render the presently claimed subject matter obvious. Applicants respectfully request withdrawal of the rejection and allowance of all now-pending claims.

Applicants draw the Office's attention to new dependent Claims 42-47 wherein the particular stable materials recited in Claims 11 and 17 are independently required to be present.

Respectfully submitted,

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WHITTINGTON'S DICTIONARY OF PLASTICS

by

Lloyd R. Whittington

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has been interlaced with crystalline
ı the molten condition or in solution.
ble delicacy that its name has been ap-
ıced crystallization.

/ an absence of surface film in some
ş through a covering surface film, ac-

rength of a parallel fiber reinforced
ading of a short segment cut from a

completely. It results in voids in the
ing, or possibly thin-skinned blisters.

ıerization reaction mixture to inhibit

he yield from one complete molding
ł flash. See also SPRAY.

be delivered to an injection mold by
lding machines, slippage of material
ns of shot capacity based on swept

ıust be made in molds to compensate
ıe ASTM method for determining
d does not provide for the measure-
ge, e.g. after the first 48 hours after

the surface of a molding caused by

or oriented film used in SHRINK

face of an injection molded article
by a short shot.

pre-stretched (oriented) films which

are heated to cause them to shrink tightly around the articles. First, the article is placed in a loose envelope of two layers of film, usually in the form of a V-folded strip. This envelope is heat sealed around the edges and detached form the strip, both of which operations can be performed by an L-shaped thermal impulse sealer and cutter. The package is then conveyed through a hot air oven or other heating device to shrink the film.

Shrink Tunnel. An oven in the form of a tunnel mounted over or containing a continuous conveyor belt, used to shrink oriented films in the shrink packaging process.

SI. (1) Abbreviation for silicone plastics. See SILICONES. (2) Abbreviation for "International System of Units," derived from the French name, Le Systeme International d'Unites. The system is a modern version of the MKSA (meter, kilogram, second, ampere) system published by an international treaty organization which is attempting to have the system adopted throughout the world. Although not officially enforced in the U.S., on December 23, 1975 President Ford signed the "Metric Conversion Act" which established a board to coordinate the "voluntary" conversion to the SI metric system in the U.S. Subsequently, the National Bureau of Standards published "Guidelines for the Metric System of Weights and Measures" for use in the U.S. It recognizes that certain units which are not part of the SI are used so widely that it is impractical to abandon them. In this Dictionary, certain SI units likely to be encountered in the plastics industry are given, along with the old units and conversion factors. It should be noted that exponential factors for multiples and fractions are given in the SI as a number greater than one and less than ten with six or less decimal places. This number is followed by an asterisk (*) after the sixth decimal place if all subsequent digits are zero — otherwise the asterisk is omitted. Following the asterisk, if any, is the letter E indicating "exponent," a plus or minus symbol, and two digits which indicate the power of 10 by which the number must be multiplied to obtain the correct value. For example, 3.234 000*E + 03 is 3.234×10^3. Although not required by law, several technical organizations such as ASTM and the American Chemical Society have stipulated that papers and definitions submitted to them for publication must give SI units. The ASTM Standard for Metric Practice is given in publication No. E 380-76^e. It also recognizes that some units outside the SI should remain in use in the U.S.

Siamese Blow. A colloquial term applied to the process of blow molding two or more objects or parts of objects in a single blowing mold, then cutting them apart.

Side Bars. Loose pieces used to carry one or more molding pins, and operated from outside the mold.

Side Draw Pins. Projections used to core a hole in a direction other than the line of closing of a mold, and which must be withdrawn before the part is ejected from the mold.

Siemens. (S) The new SI-approved term for electrical conductance, expressed by dividing amperes by volts. It is equivalent to the old term *mho,* the reciprocal of resistance.

Silane Coupling Agents. Silanes (compounds of silicon and hydrogen of the formula Si_nH_{2n+2}) and other monomeric silicon compounds which have the ability to bond inorganic materials such as glass, mineral fillers, metals and metallic oxides to organic resins. The adhesion mechanism is due to two groups in the silane structure. The $Si(OR_3)$ portion reacts with the inorganic reinforcement, while the organofunctional (vinyl-, amino-, epoxy- etc.) group reacts with the resin. The coupling agent may be applied to the inorganic materials (e.g. glass fibers) as a pre-treatment and/or added to the resin. Examples of silane coupling agents are:

N-beta-(AMINOETHYL)-gamma-AMINOPROPYLTRIMETHOXY SILANE,
gamma-AMINOPROPYLTRIETHOXY SILANE,
BIS(beta-HYDROXYETHYL)-gamma-AMINOPROPYLTRIETHOXY SILANE,
beta-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE,
gamma-GLYCIDOXYPROPYLTRIMETHOXY SILANE,
gamma-METHACRYLOXYPROPYLTRIMETHOXY SILANE,
SULFONYLAZIDOSILANES,
VINYL TRICHLOROSILANE,
VINYL TRIETHOXYSILANE, and
VINYL-TRIS(beta-METHOXYETHYL) SILANE.

A new class of silane coupling agents is known as *silyl peroxides,* represented by the general formula $R'_mR''_{(4-n-m)}Si(OOR)_n$. A typical member of this family is Vinyltris-(t-butylperoxy)silane. The coupling mechanism of the silyl peroxides, effected by heat only, is free radical in nature. The conventional silanes require an external free radical source and couple via an ionic mechanism initiated by hydrolysis.

Silgan. Tradename of SWS, a subsidiary of Stauffer Chemical Co., for a line of room-temperature vulcanizing silicone elastomers reinforced with polymeric organic fibers which are chemically grafted to the silicone network during the manufacturing process. SILGAN is used for potting electrical components, gaskets formed from the liquid compound and molded parts.

Silica. SiO_2 (silicon dioxide) A substance occurring naturally as quartz, sand, flint, chalcedony, opal, agate, etc. In powdered form it is used as a filler, especially in phenolic compounds for ablative nose cones of rockets. Synthetic silicas, made from sodium silicate or heating silicon compounds are also available. See also FUMED SILICA.

Silicone Foams. Foams based on fluid silicone resins are made by mixing the resins with a catalyst and blowing agent, pouring the mixture into molds, and curing at room temperature for about 10 hours on at elevated temperatures for shorter periods. Silicone foam sponge is made by mixing unvulcanized silicone rubber with a blowing agent and heating at vulcanizing temperature.

Silicone-Polycarbonate Copolymers. Introduced in 1969 by the General Electric Company, these thermoplastic copolymers vary from strong elastomers to rigid "engineering plastics" depending on composition. They can be extruded at temperatures from 550 to 625 °F, or cast or molded into optically clear films. An initial application has been for permselective membranes which are heat-sealable and ten times more permeable to oxygen than non-silicone polymers.

Silicone Rubber. A synthetic rubber made by vulcanizing a silicone elastomer gum such as dimethyl silicone. A free-radical generating catalyst such as penzoyl peroxide is usually used as the vulcanizing agent. The tensile strength of unreinforced silicone rubber is only about 50 psi. Higher tensile strengths are attained by adding reinforcing fillers such as finely-divided or fumed silica, or by putting crystallizing segments such as silphenylene into the polymer. See also SILICONES.

Silicones. A family of semi-organic polymers comprising chains of alternating silicon and oxygen atoms, modified with various organic groups attached to the silicon atoms. Depending on the nature of the attached organic groups and the extent of crosslinking between the molecules